Subject: Re: a plea for more reliable mathematical routines
Posted by Theo Brauers on Tue, 14 Sep 1999 07:00:00 GMT
View Forum Message <> Reply to Message

Liam Gumley wrote:
>
> Richard G. French <rfrench@wellesley.edu> wrote in message
> news:37D82EA9.BA62A369@wellesley.edu...
>> I have the same uneasiness about the implementation of mathematics
>> routines in IDL, having
>> found some simple errors in things like CURVEFIT over the past few
>> years. If RSI wants
>> to make inroads into the serious scientific computing arena, they will
>> have to hire some
>> mathematicians who will take the time and care to make sure that the
>> mathematical functions
>> really are properly handled. Otherwise, folks will head off to MATLAB or
>> Fortran (gasp!) or
>> other languages where you can count on getting a Bessel function when
>> you call a Bessel function, or get a random number when you want one.
>
> I believe there is a market for either an add-on Mathematical Toolbox, or
> preferably built-in access to a selection of routines from a well-respected
> mathematical library like BLAS, LAPACK, CMLIB, NAG etc. For example, NAG
> developed an add-on library for Matlab:
>
> http://www.nag.co.uk/nagware/NN.html
>
> I think many people would be more than willing to either upgrade their IDL
> version, or buy an add-on toolbox, if it gave them access to a set of
> high-quality numerical routines. A user survey would no doubt tell RSI very
> quickly which routines people would like to see (Bessel functions and random
> numbers have been mentioned).
>
> Cheers,
> Liam.
> http://cimss.ssec.wisc.edu/~gumley/

In our group we do rely on a number of the built-in math routines of IDL
and
I would really appreciate if this group could assemble a warning list of
bugs in the math routines of IDL. IMO most of the IDL user/programmers
do
simple checks for the correctness of their code but they might never
check
the math routines in detail.

I would also prefer to have access to a full set of IMSL or NAG or ...

The implementation of the Numerical recipies sucks since a number of routines
are not available. Some features are avialable through the astro/JHU .. libs
(Thanks to these folks) but the standard quality control of IMSL/NAG wont
be possible. I also think that each mathematical function/procedure needs
describtion of the formula/algorithm used. Some of the routines ie.
R_CORRELATE have it, but the help description of P_CORRELATE or CURVEFIT is
just incomplete. The note: "This routine is written in the IDL language.
Its source code can be found in the file r_correlate.pro in the lib
subdirectory of the IDL distribution." sounds like "Dear user: if you
want to debug our routine please feel free to do so." I think it is great
that the source is available, however, I dont want to spend my time
debugging RSI provided routines.

Best,
Theo
